WHAT IS CLAIMED:

1. A system for simultaneously receiving or switching between dual frequency carrier signals, comprising:

a sub-harmonic frequency generator, for generating a sub-harmonic frequency so as to enable harmonics of the sub-harmonic frequency to generate local oscillator frequency signals for the dual frequency carrier signals, and for mixing the dual frequency carrier signals with the local oscillator frequency signals, to generate distinct intermediate frequency signals for each dual frequency carrier signal, wherein the local oscillator frequency signals are adapted to include I and Q phases; and

an image reject mixer, for separating the dual frequency carrier signals, and for switching between the dual frequency carrier signals, responsive to exchanging the I and Q phases of the local oscillator frequency signals.

2. The system of claim 1, comprising a global positioning system receiver, wherein the dual frequency carrier signals comprise L1 and L2 GPS carrier signals, and the GPS receiver is adapted to simultaneously receive or switch between the L1 and L2 GPS carrier signals.

3. The system of claim 1, wherein the sub-harmonic frequency generator comprises a voltage controlled oscillator, for generating the sub-harmonic frequency, and a mixer, for mixing the dual frequency carrier signals with the local oscillator frequency signals.

4. The system of claim 1, wherein the sub-harmonic frequency generator comprises a sub-harmonic mixer, for generating the sub-harmonic frequency, and for mixing the dual frequency carrier signals with the local oscillator frequency signals.

5. The system of claim 1, further adapted to generate a final intermediate frequency, wherein the image reject mixer is adapted to generate the final intermediate frequency upon mixing with a local oscillator frequency signal which is intermediate the L1 and L2 intermediate frequencies.

6. The system of claim 1, wherein the intermediate frequency signals generated in the sub-harmonic frequency generator are on either side of the local oscillator frequency signal in the image reject mixer, and are adapted to be separated by the image reject mixer.

7. The system of claim 1, wherein the image reject mixer includes a plurality of outlets adapted to be connected therein, and is adapted to receive the dual frequency carrier signals simultaneously through the plurality of outputs.

8. The system of claim 1, wherein the image reject mixer includes a plurality of outlets adapted to be connected therein, and is adapted to switch between the dual frequency carrier signals through one of the plurality of outputs.

9. The system of claim 2, wherein the sub-harmonic frequency generator is adapted to mix the third harmonic with the L2 carrier, and the fourth harmonic with the L1 carrier.

10. The system of claim 2, wherein the sub-harmonic frequency is about 401.62 MHz.

11. The system of claim 2, further comprising a split-band surface acoustic wave filter, for passing the L1 and L2 frequencies and rejecting other frequencies, adapted to be connected to the sub-harmonic frequency generator.

12. The system of claim 2, further adapted to generate a final intermediate frequency, wherein the frequencies of the sub-harmonic frequency generator signal and the sub-harmonic frequency generator harmonics are such that the difference between the distinct intermediate frequency signals is twice the final intermediate frequency.

13. The system of claim 4, wherein the sub-harmonic mixer comprises an integrated switched capacitor sub-sampling mixer.

14. The system of claim 12, wherein the local oscillator frequency which is adapted to be mixed with the L1 and L2 intermediate frequencies in the image reject mixer is substantially halfway between the L1 and L2 intermediate frequencies.

15. The system of claim 13, wherein the sub-sampling mixer includes switches comprising N-channel metal oxide semiconductor transistors.

16. A method of simultaneously receiving or switching between dual frequency carrier signals, in a system which comprises a sub-harmonic frequency generator, for generating a sub-harmonic frequency so as to enable harmonics of the sub-harmonic frequency to generate local oscillator frequency signals for the dual frequency carrier signals, and for mixing the dual frequency carrier signals with the local oscillator frequency signals, to generate distinct intermediate frequency signals for each dual frequency carrier signal, wherein the local oscillator frequency signals are adapted to include I and Q phases, and an image reject mixer, for separating the dual frequency carrier signals, and for switching between the dual frequency carrier signals responsive to exchanging the I and Q phases of the local oscillator frequency signals, wherein the method comprises:

generating a sub-harmonic frequency so as to enable harmonics of the sub-harmonic frequency to generate local oscillator frequency signals for the dual frequency carrier signals, and mixing the dual frequency carrier signals with the local oscillator frequency signals, to generate distinct intermediate frequency signals for each dual frequency carrier signal; and

separating the dual frequency carrier signals, and switching between the dual frequency carrier signals, responsive to exchanging I and Q phases of the local oscillator frequency signals.

17. The method of claim 16, comprising a global positioning system receiver, wherein the dual frequency carrier signals comprise L1 and L2 GPS carrier signals, and the GPS receiver is adapted to simultaneously receive or switch between the L1 and L2 GPS carrier signals, wherein generating and mixing, and separating and switching comprises generating and mixing, and separating and switching the L1 and L2 GPS carrier signals.

18. The method of claim 16, wherein the sub-harmonic frequency generator comprises a voltage controlled oscillator, for generating the sub-harmonic frequency, and a mixer, for mixing the dual frequency carrier signals with the local oscillator frequency signals, and wherein generating and mixing comprises generating in the voltage controlled oscillator, and mixing in the mixer.

19. The method of claim 16, wherein the sub-harmonic frequency generator comprises a sub-harmonic mixer, for generating the sub-harmonic frequency, and for mixing the dual frequency carrier signals with the local oscillator frequency signals, and wherein generating and mixing comprises generating and mixing in the sub-harmonic mixer.

20. The method of claim 16, further adapted to generate a final intermediate frequency, wherein the image reject mixer is adapted to generate the final intermediate frequency upon mixing with a local oscillator frequency signal which is intermediate the L1 and L2 intermediate frequencies, further comprising generating a final intermediate frequency in the image reject mixer.

21. The method of claim 16, wherein the intermediate frequency signals generated in the sub-harmonic frequency generator are on either side of the local oscillator frequency signal in the image reject mixer, and are adapted to be separated by the image reject mixer, wherein generating further comprises generating the intermediate frequency signals on either side of the local oscillator frequency signal of the image reject mixer, and separating the intermediate frequency signals in the image reject mixer.

22. The method of claim 16, wherein the image reject mixer includes a plurality of outlets adapted to be connected therein, and is adapted to receive the dual frequency carrier signals simultaneously through the plurality of outputs, further comprising receiving the dual frequency carrier signals simultaneously through the plurality of outlets in the image reject mixer.

23. The method of claim 16, wherein the image reject mixer includes a plurality of outlets adapted to be connected therein, and is adapted to switch between the dual frequency carrier signals through one of the plurality of outputs, further comprising switching between the dual frequency carrier signals through one of the plurality of outputs in the image reject mixer.

24. The method of claim 17, wherein the sub-harmonic frequency generator is adapted to mix the third harmonic with the L2 carrier, and the fourth harmonic with the L1 carrier, further comprising mixing the third harmonic with the L2 carrier, and the fourth harmonic with the L1 carrier, in the sub-harmonic frequency generator.

25. The method of claim 17, wherein the sub-harmonic frequency is about 401.62 MHz, wherein generating comprises generating a sub-harmonic frequency of about 401.62 MHz in the sub-harmonic frequency generator.

26. The method of claim 17, further comprising a split-band surface acoustic wave filter, for passing the L1 and L2 frequencies and rejecting other frequencies, adapted to be connected to the sub-harmonic frequency generator, further comprising passing the L1 and L2 frequencies and rejecting other frequencies in the split-band surface acoustic waver filter.

27. The method of claim 17, further adapted to generate a final intermediate frequency, wherein the frequency of the sub-harmonic frequency generator signal and the sub-harmonic frequency generator harmonics are such that the difference between the distinct intermediate frequency signals is twice the final intermediate frequency, further comprising generating a final intermediate frequency wherein the difference between the distinct intermediate frequency signals is twice the final intermediate frequency.

28. The method of claim 19, wherein the sub-harmonic mixer comprises an integrated switched capacitor sub-sampling mixer, and wherein generating and mixing comprises generating and mixing in the integrated switched capacitor sub-sampling mixer.

29. The method of claim 27, wherein the local oscillator frequency which is adapted to be mixed with the L1 and L2 intermediate frequencies in the image reject mixer is substantially halfway between the L1 and L2 intermediate frequencies, and wherein generating a final intermediate frequency further comprises generating a final intermediate frequency in which the local oscillator frequency is substantially halfway between the L1 and L2 intermediate frequencies.

30. The method of claim 28, wherein the sub-sampling mixer includes switches comprising N-channel metal oxide semiconductor transistors, and wherein mixing further comprises mixing in the N-channel metal oxide semiconductor transistor switches in the sub-sampling mixer.